The Food Environment and Food Insecurity: Perceptions of Rural, Suburban, and Urban Food Pantry Clients in Iowa

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Poverty, food insecurity, and hunger are increasing across the Nation as Federal, State, and local economies continue to struggle. In 2003, the official U.S. poverty rate was 12.5 percent (35.9 million people), up from 12.1 percent (34.6 million people) in 2002 (DeNavas-Walt, Proctor, & Mills, 2004). Meeting nutritional needs is particularly troublesome for poor families: More than 12 million households (11.1 percent) have reported food-related hardships due to insufficient resources; 3.8 million (3.5 percent) households have reported experiencing hunger (Nord, Andrews, & Carlson, 2003). Further, households with children have been reported as being twice as likely to be food insecure, compared with households without children (Nord et al., 2003).

Background

Food access is an important public policy issue across America, especially so in urban areas. The U.S. House Select Committee on Hunger studied shopping patterns of the poor and found that urban dwellers pay more for groceries in their local neighborhoods than do suburban residents (Morland, Wing, Rouz, & Poole, 2002). Others found that income affected access to rural and urban grocery stores and food varieties available for purchase (Perry, 2002; Morland et al., 2002). Moreland et al. (2002) found that residential areas where low-income households are located had fewer supermarkets and a smaller variety of foods, compared with what was available in wealthy areas. Low-income households that are unable to access the normal food system,[1] because of store locations and income constraints, are at risk of hunger and poor nutritional outcomes.

Local food safety-net providers are experiencing the strain of trying to provide food for an increasing number of struggling families. For instance, America's Second Harvest—the Nation's largest organization of emergency food providers—served 23.3 million people in 2001. Further, a survey in late 2001 and early 2002 found that 86 percent of Second Harvest's affiliates had seen an increase in requests for food assistance during the past year (America's Second Harvest, 2004). In addition, most families that turned to food pantries were working or had children (Zedlewski & Nelson, 2003). The Iowa Department of Human Services reported receiving 1.4 million requests for emergency food services in 2003, almost twice the number of requests received in 2000 (Iowa Department of Human Services, 2004). This increase in emergency food requests coincided with an increasing rate of food

[1]The normal food system consists of food from grocery stores, supermarkets, food service operations, and other retail establishments that make food available for consumer purchase in the market system (Campbell, 1991).

insecurity in Iowa: 9.1 percent in 2000-2002, up from 8.0 percent in 1996-98 (Nord et al., 2003). Thus, families throughout the United States, but especially those in the Midwest, are experiencing difficulties meeting their basic food needs.

We examined data from a purposeful study of Iowa food pantry clients living in urban, rural, and suburban settings. We focused attention on their perceptions of the environment in which they access food and their levels of food insecurity. Food pantry clients are often the most vulnerable households in a community; they lack financial and social resources that can help them solve problems related to food acquisition. In fact, community, social, economic, and institutional characteristics can influence food insecurity (Cohen, 2004). Understanding the circumstances under which these families attempt to meet their nutritional needs is vital to addressing the problems of food insecurity that permeate many U.S. communities. Of particular interest to this study are factors related to the household's participation in the normal food system, which provides a household with an initial capacity to meet its food and nutrition needs (Bitto, Morton, Oakland, & Sand, 2003; Cohen, 2004; Morton, Bitto, Oakland, & Sand, in press). Specifically, we concentrated on availability, access to and affordability of food from grocery stores, proximity to retail food stores, and transportation systems.

Methods

We developed a questionnaire to distribute to local food pantry clients to obtain information that would reflect changes over time in the food security status of low-income residents in a community (Greder, Garasky, Jensen, & Morton, 2002). The survey instrument captured broadly the conditions under which these households attempted to meet their nutritional needs. Respondents were queried about their (1) food security, (2) access to the normal food system and community food resources, (3) participation in assistance programs, (4) amounts and sources of income, (5) employment, and (6) personal characteristics. Questions about the local food environment dealt with perceptions of the adequacy of the number of grocery stores in the community, prices, store locations, transportation, and travel time to grocery stores.

The survey instrument also included six questions about behaviors and experiences known to typify households under pressure to meet their food needs (Bickel, Nord, Price, Hamilton, & Cook, 2000; Nord, 2003; Nord & Andrews, 1999). This series of questions was developed by the USDA to assess household food security along a continuum that can be divided into three ranges: food secure, food insecure without hunger, and food insecure with hunger. The first response category for each question was considered an affirmative ("yes") for computing the respondents' food security scale value. If a respondent answered "no" to the stem question (Q3), a "no" response was inferred for the follow-up questions (Q4 to Q6). The resulting scale values were as follows:

- Food secure—yes to 0 to 1 question;
- Food insecure without hunger—yes to 2 to 4 questions; and
- Food insecure with hunger—yes to 5 to 6 questions.

Questionnaires were completed by food pantry clients during the summer of 2002. Potential respondents were identified in two ways. First, completed surveys were obtained directly from food pantries in four Iowa counties. These pantries served approximately 2,400 families each month during the study period. Extension staff of Iowa State University assisted in identifying local pantries willing to participate in the study. The staff at each pantry was asked to distribute surveys to all adults who came to the pantry to obtain food. Second, five focus group interviews were conducted. Each focus group, identified with the help of the Extension staff of Iowa State University, consisted of 3 to 12 individuals who possessed key characteristics most relevant to the research problem. Specifically, we were interested in the use of community food resources by low-income (185 percent of poverty or below) individuals who either were at least 60 years old or were parents with children under 10 years old.

Completed surveys were received from 629 individuals, all of whom acquired food from food pantries. Of this total, 589 respondents were asked to complete surveys at the food pantries. Forty of the 47 (33 elderly and 14 parents with young children) focus group participants reported acquiring food from a pantry. Four hundred seventy-seven respondents used an urban pantry; 60, a suburban pantry; and 60, a rural pantry. The pantry location was not discernable for 32 individuals. The results discussed in this study are from the 597 individuals for which a pantry location could be determined.

Results

Clients of rural food pantries, compared with those of suburban and urban food pantries, were more likely to be older and likely to have fewer people in the household. Rural clients of food pantries were, on average, 49 years old; suburban clients, 40 years old; and urban clients, 39 years old (table 1). This age difference, although not

Table 1. Urban, rural, and suburban food pantry users' demographic characteristics and perceptions of their food environment

Variable	Urban	Rural	Suburban
Demographic characteristics			
Age (years)	38.9	49.0	40.4
Household size (persons)	2.9	2.5	3.3
Monthly income ($)	739.40	905.17	781.25
Less than high school education (%)	35.6[b]	23.4	13.3[b]
Work at a paid job (%)	35.8	27.1	34.5
		Percent[1]	
Perceptions			
There are enough supermarkets/grocery stores in my community.			
Not enough	21.6[a]	50.0[a,c]	12.7[c]
Enough	55.6	44.8	56.4
More than enough	22.8	5.2	30.9
Supermarkets/grocery stores in my community offer an affordable variety of healthy food choices.			
Not affordable	10.7[b]	14.3	3.8[b]
Seldom affordable	21.1	10.7	5.8
Sometimes affordable	53.8	60.7	57.7
Always affordable	14.4	14.3	32.7
Supermarkets/grocery stores in my community are located where people feel safe.			
Not safe	3.6[a,b]	0.0[a]	0.0[b]
Usually safe	58.9	46.4	25.5
Always safe	37.6	53.6	74.5
There is affordable transportation to get to supermarkets/grocery stores in my community.			
Yes	76.1[a,b]	62.2[a]	61.2[b]
No	23.9	37.8	38.8
Currently receiving food stamps	34.6	27.1	22.0
Currently receiving WIC (Women, Infants, & Children) program benefits	12.9	13.6	3.3
Community/school gardens are available for people to get food in my community.			
No gardens	34.6[a,b]	68.0[a]	75.0[b]
Few gardens	53.5	24.0	18.8
Many gardens	11.8	8.0	6.3
There are group meal sites and home-delivered meals available for elderly persons where I live.			
Not available	15.9[b]	15.4	37.5[b]
Available 1-4 days per week	18.1	20.5	4.2
Available Monday through Friday only	42.2	51.3	50.0
Available 6-7 days per week	23.7	12.8	8.3
		Mean	
Minutes to the nearest grocery store	12.88	9.26	10.16
(standard deviation)	(12.27)	(6.82)	(5.74)
Number of times respondent used food pantries in the past 12 months	4.59	1.36	4.03
(standard deviation)	(3.35)	(1.33)	(2.95)

[1]Percent of pantry clients providing each particular response.Categorical responses may not sum to 100 percent because of rounding.
[a]Difference between the distribution of responses for the urban and rural samples is statistically significant at the $p < .05$ level.
[b]Difference beween the distribution of responses for the urban and suburban samples is statistically significant at the $p < .05$ level.
[c]Difference between the distribution of responses for the rural and suburban samples is statistically significant at the $p < .05$ level.
N = 477 (urban), 60 (rural), and 60 (suburban).

Overall, among all pantry clients, suburban pantry clients were the least food secure. . . . Rural respondent households were the most food secure.

statistically different among food pantry users, reflects a general pattern of the age distribution in Iowa: rural places have an older population than do urban areas. The households of rural pantry users consisted of 2.5 people, compared with 2.9 for the urban group and 3.3 for the suburban group.

Compared with other food pantry clients, those of urban food pantries had the lowest income and educational level. The relatively younger users of urban food pantries reported the lowest average monthly income ($739) of the three groups, followed closely by the suburban sample ($781). Users of rural food pantries reported an average monthly income of $905. Thirty-six percent of the urban sample had less than a high school education, compared with 23 percent of the rural group and 13 percent of the suburban population. The difference in educational attainment between the urban and suburban clients was statistically significant. About one-third of the survey respondents in each group worked at a paid job.

Perceptions of the Food Environment

Rural food pantry clients (50 percent) were significantly more likely than were urban (22 percent) or suburban clients (13 percent) to perceive their community as having an inadequate number of grocery stores or supermarkets (table 1). Although the suburban sample did not always find affordable varieties of foods, they reported significantly greater affordability than did their urban counterparts (90 vs. 68 percent reported that community supermarkets or grocery stores sometimes or always offered affordable varieties of healthful foods). Rural perceptions of affordability were similar to those of the urban sample. All three groups reported that the places where their grocery stores were located were usually safe or always safe (urban, 96 percent; rural and suburban, 100 percent each). However, compared with rural and suburban clients, urban pantry clients believed they were least safe, a difference that was statistically significant.

Transportation concerns were greatest in suburban and rural places, with 39 and 38 percent, respectively, of the respondents reporting no affordable transportation in their community. About one-quarter of the urban food pantry clients said there was no affordable transportation to the grocery store in their community. All three samples reported similar average traveling times to the nearest grocery store, ranging from 9 to 13 minutes. Although one might expect that rural respondents would travel further to the grocery store, it is possible that all groups experienced similar traveling times because the rural pantry clients lived closer to a town where the food pantry and grocery stores were located.

Use of the normal food system is dependent upon financial resources to purchase foods. Lacking these resources, many food-insecure households must turn to secondary food sources. These secondary sources range from government programs such as the Food Stamp Program and the Special Supplemental Nutrition Program for Women, Infants, and Children (popularly known as WIC) to community programs that include school gardens, group meal sites, and food pantries. More than one-third (35 percent) of the urban sample received food stamps, compared with about one-fourth (27 percent) of the rural and about one-fifth (22 percent) of the suburban respondents. These differences, however, were not statistically different. Compared with the other food pantry users, suburban food pantry users (3 percent) were significantly less likely to be enrolled in WIC, despite having the largest

Table 2. Urban, rural, and suburban food pantry users' perceptions of food insecurity

Variable	Urban	Rural	Suburban
		Percent[1]	
Q1. The food that I/we bought just didn't last, and I/we didn't have money to get more.			
Often or sometimes true	84.1[a]	61.7[a,c]	91.7[c]
Never true	15.9	38.3	8.3
Q2. I/we couldn't afford to eat balanced meals.			
Often or sometimes true	75.5[a]	61.7[a,c]	85.0[c]
Never true	24.5	38.3	15.0
Q3. In the last 12 months did you and/or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?			
Yes	59.1[a]	41.7[a,c]	61.7[c]
No	40.9	58.3	38.3
Q4. **If yes to Q3,** how often did this happen?			
Almost every month, some months but not every month	88.2	84.0	91.4
For only 1 or 2 months	11.8	16.0	8.6
Q5. **If yes to Q3,** in the last 12 months, did you ever eat less than you felt you should have because there wasn't enough money to buy food?			
Yes	92.8	92.0	91.7
No	7.2	8.0	8.3
Q6. **If yes to Q3,** in the last 12 months, were you ever hungry but didn't eat because you couldn't afford enough food?			
Yes	76.4	68.0	72.2
No	23.6	32.0	27.8

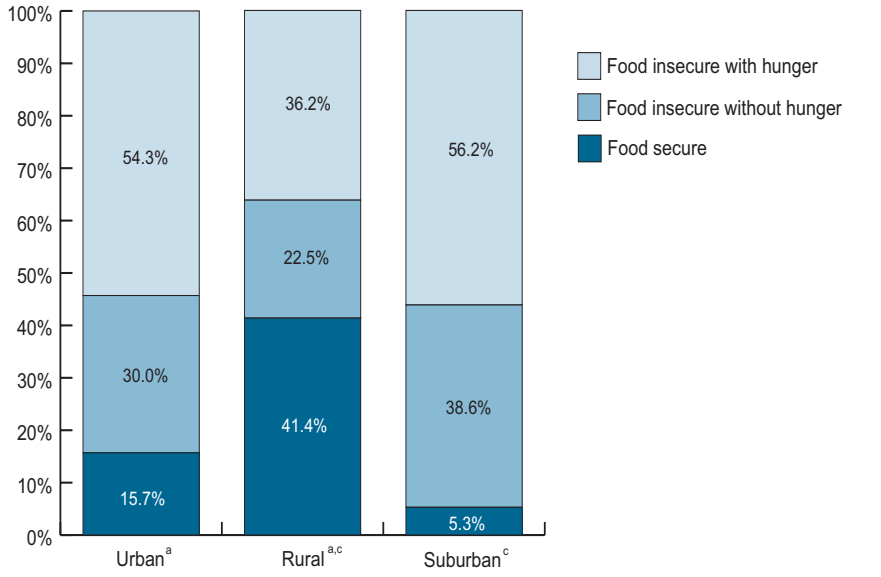
[1]Percentage of pantry clients providing each particular response. Categorical responses may not sum to 100 percent because of rounding.
[2]The first response category for each question (Q1 - Q6) is considered an affirmative response ("yes") for computing the respondent's food security scale value. If the respondent answered "no" to Q3, a "no" response was inferred for Q4 - Q6. Cell values are the percentage of pantry clients in each food security category. Categorical percentages may not sum to 100 percent because of rounding.
[a]Difference between the distribution of responses for the urban and rural samples is statistically significant at the $p < .05$ level.
[b]Difference beween the distribution of responses for the urban and suburban samples is statistically significant at the $p < .05$ level.
[c]Difference between the distribution of responses for the rural and suburban samples is statistically significant at the $p < .05$ level.

households. The urban and rural samples were more similar; 13 and 14 percent, respectively, were enrolled in WIC. Urban food pantry clients, compared with the others, were significantly more likely to say that community gardens and school gardens were available as food sources in their community. Group meal sites and home-delivered meals for the elderly were reported to be available more days of the week in urban and rural settings than in suburban ones, although only the difference between urban and suburban settings was statistically significant. Lastly, urban clients reported using a food pantry more often (4.6 times, on average) in the last year than did suburban (4.0 times) and rural (1.4 times) clients, although these differences were not statistically significant.

Food Insecurity

Although food security was not the norm among the food pantry clients, differences in rates of food security clearly existed among the three groups (table 2). The rural pantry users consistently reported having significantly lower proportions of individuals experiencing problems related to food acquisition. For example, compared with the other pantry clients, the rural clients were least likely to report that it was often or sometimes true that the food they bought did not last and that they did not have money to obtain more food. Similarly, they were least

Figure 1. Household food security among urban, rural, and suburban food pantry clients



[a]Difference between the distribution of responses for the urban and rural samples is statistically significant at the p < .05 level.
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[c]Difference between the distribution of responses for the rural and suburban samples is statistically significant at the p < .05 level.

likely to say that it was often or sometimes true that they could not afford to eat balanced meals. In the last 12 months, the rural clients, compared with the suburban and urban clients, also were least likely to report that adults in their household cut the size of their meals, or skipped meals, because there was not enough money for food.

Overall, among all pantry clients, suburban pantry clients were the least food secure (5 percent) (fig. 1). A slightly higher percentage of the urban households (16 percent) were food secure. Rural respondent households were the most food secure (41 percent). These differences were statistically significant. At the other end of the continuum, food insecurity with hunger among the three groups closely paralleled overall food security: The rural group had the smallest proportion reporting hunger (36 percent), and over half of the urban (54 percent) and suburban (56 percent) households reported being food insecure with hunger.

Conclusions

This purposeful study of Iowa food pantry clients offers a snapshot of some of the most resource-stressed and vulnerable households in a community. These families face many common challenges to accessing food, such as having reliable and affordable transportation. Although almost all (94 percent) Iowa households have a vehicle (U.S. Census Bureau, 2002), study participants, especially those in rural and suburban areas, report that access to affordable transportation to grocery stores is problematic. This result is consistent with other research that has found that both the inner city and the rural poor often face transportation issues related to meeting their nutritional needs (Bitto et al., 2003; Moreland et al., 2002).

Households lacking transportation will have problems that go beyond accessing the normal food system. Troubling among the participants of this study are the low rates of participation in government food assistance programs. Only one-in-three of our urban food pantry users currently receive food stamps; the rate is about one-in-four for rural and suburban pantry clients. While WIC benefits are more targeted (eligibility criteria are more restrictive), WIC participation rates range from 14 percent among the rural group to 3 percent among suburban respondents (table 1).

Other evidence suggests that non-participation among families eligible for food assistance program benefits is a problem that goes beyond Iowa and food pantry users (Bartlett & Burstein, 2004; USDA, 2003b). Recent Food Stamp Program policy focusing on increasing participation (USDA, 2003a) must continue and be expanded to address the transportation-related program access problems of eligible families. Further, this policy objective of increasing participation among eligible families must be expanded to all USDA food assistance programs. Low-income parents access a range of other community resources to meet the food needs of their families. The volunteer sector of the community is especially important. Our research suggests that all communities, regardless of rural-urban orientation, need to find formal and informal ways to ensure access to food.

Despite the common label "food pantry client," rural, urban, and suburban pantry users are not a homogenous group: They do not have the same personal characteristics; they do not access their food environments in the same way. If effective policy is to be developed, additional research is needed regarding the circumstances under which urban, rural, and suburban low-income families access their food environment and meet their nutritional needs. Our findings are consistent with other studies of food access by low-income households. Nevertheless, families who participated in this study lived in selected rural and urban communities in Iowa and received food from food pantries. Our respondents are representative of families in similar contexts. However, given our purposeful sampling approach, the findings are not generalizable to broader limited-income populations. Clearly, more research is needed.

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